

VAYNSHTEYN, B.Z., inzh.

Membrane actuators of traction devices for the rolling stock
of electric railroads. Vest. TSNII MP8 25 no.1:9-13 '66.
(MIRA 19:2)

KHEYFEITS, Ye.B., inzh.; VAYNSHTEYN, B.Z., inzh.; GUDAVADZE, G.G., inzh.;
ZHITKOV, N.Ya., inzh.

New design of a reversing switch for electric rolling stock and
diesel locomotives. Elektrotehnika 35 no.11:11-12 N '64.
(MIRA 18:6)

VAYNSHTEYN, B.Z. (Tbilisi); VOL'F, A.M., kand. tekhn. nauk

Experimental study of the heating and cooling of the traction
motors of main line electric locomotives. Elektrichestvo
no.10:85-86 O '64. (MIRA 17:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta, Ural'skoye otdeleniye (for Vol'f).

VAYNSHTEYN, B.Z., inzh.

"Electric traction apparatus" by N.M. Balalov and B.P. Petrov.
Reviewed by B.Z. Vainshtein. Elektrotehnika 35 no.1:60-62
Ja '64. (MIRA 17:2)

CHUMBURIDZE, I.P. (Tbilisi); VAYNSHTEYN, B.Z. (Tbilisi)

Voltage unification in the circuit control of the rolling stock. Zhel.-
dor.transp. 45 no.12:53-54 D '63. (MIRA 17:2)

1. Direktor Tbilisskogo nauchno-issledovatel'skogo elektrotekhnicheskogo
instituta (for Chumburidze). 2. Rukovoditel' laboratorii Tbilisskogo nauch-
no-issledovatel'skogo elektrotekhnicheskogo instituta (for Vaynshteyn).

AMIRAGOV, E.M.; VAYNSHTEYN, B.Z.

Diaphragm drives for the apparatus of the series VL8 electric locomotive. Elek. i tepl. tiaga 7 no.9:9-10 S '63.

(MIRA 16:10)

1. Glavnyy konstruktor Tbilisskogo elektrovostroitel'nogo zavoda im. V.I.Lenina (for Amiragov). 2. Rukovoditel' laboratorii Nauchno-issledovatel'skogo elektrotekhnicheskogo instituta Soveta narodnogo khozyaystva Gruzinskoy SSR (for Vaynshteyn).

MKHEIDZE, V.N., inzh.; VAYNSHTEYN, B.Z., inzh.

Means for increasing the operational reliability of electrical
equipment. Vest. elektroprom. 34 no.3:50-51 Mr '63.
(MIRA 16:8)

(Electric industries—Quality control)
(Electric machinery)

BERDZENISHVILI, B.G.; VAYNSHTEYN, B.Z.; ZHITKOV, N.Ya.; KUCHAVA, V.A.

Lightened pantograph for high-speed rolling stock. Elek. i
tepl. tiaga 7 no.3:6-7 Mr '63. (MIRA 16:6)

1. Sotrudniki otdela elektricheskoy tyagi Nauchno-issledovatel'-
skogo elektrotekhnicheskogo instituta Soveta narodnogo
khozyaystva Gruzinskoy SSR.
(Electric railroads--Wires and wiring)

BELYAYEV, Igor' Aleksandrovich; VAYNSHTEYN, Boris Zinov'yevich;
VETROV, N.I., inzh., retsenzent; KALININ, V.K., kand.
tekhn. nauk, red.; KHITROVA, N.A., tekhn. red.

[Mechanization of work and automation of systems in contac-
network maintenance] Mekhanizatsiia rabot i avtomatizatsiia
ustroistv na distantsiakh kontaktnoi seti. Moskva, Trans-
zheldorizdat, 1963. 84 p. (MIRA 16:5)
(Electric railroads—Wires and wiring)

VAYNSHTEYN, B.Z., inzh.

"High-voltage switch drives" by I.G.Korovlakovskii. Reviewed by
B.Z.Vainshten. Elek.sta. 34 no.2:92 F '63. (MIRA 16:4)
(Electric switchgear) (Korovlakovskii, I.G.)

VAYNSHTEYN, B.Z., inzh.; GUDAVADZE, G.G., inzh.; KHEYFITS, Ye.B., inzh.

Use of ~~diaprom~~ drives in electric traction machinery. Vest.
elektroprom. 33 no.9:37-39 S '62. (MIRA 15:10)
(Electric railway motors—Equipment and supplies)

VAYNSHTEYN, B.Z.

Thirtieth anniversary of the electrification of railroad
transportation in the Suram Pass. Elektrichestvo no.8:83-87
Ag '62. (MIRA 15:7)
(Suram Range--Electric railroads)

VAYNSHTEYN, B.Z., inzh.; GUDAVADZE, G.G., inzh.; KHEYFITS, Ye.B., inzh.

Design and calculation of the group controllers of the rolling stock. Vest. TSNII MPS 21 no.1:15-19 '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy elektrotekhnicheskiy institut, g. Tbilisi.

(Electric controllers)

BEZHANOV, V.G., inzh.; VINNIKOV, I.L., inzh.; VAYNSHTEYN, B.Z., inzh.

Study of the commutation of an electric traction machine with a laminated yoke operating with a pulsating potential. Vest. elektroprom. (MIRA 15:1)

31 no.10:13-15 0 '60.

(Electric railway motors) (Electric locomotives)

VAYNSHTEYN, B.Z., inzh.

Concerning the types of relay equipment used in signaling and
automatic control systems. Energetik 9 no.11:10-11 N '61.

(Mira 14:12)

(Automatic control)

(Electric relays)

VAYNSHTEYN, B.Z., inzh.

In regard to V.G. Vasil'ev's article "Decreasing the number of elements
in lead-acid storage batteries at electric power plants." Elek. sta.
32 no. 5:93 My '61. (MIRA 14:5)

(Storage ~~batteries~~)

(Electric power plants—Equipment and supplies)

(Vasil'ev, V.G.)

VAYNSHTEYN, B.Z., inzh.

Concerning the magnitude of the voltage in control circuits of
rolling stock. Vest. elektroprom. 31 no.11:31-32 N '60.
(MIRA 13:12)

(Locomotives)

VAYNSHTEYN, B.Z.

How to prevent damages to frequency triplers. Elek. i tepl. tiaga 4
no. 2:26 P '60. (MIRA 13:6)

1. *Rukovoditel' laboratorii Nauchno-issledovatel'skogo elektrotekhnicheskogo instituta sovnarkhoza Gruzinskoy SSR, g. Tbilisi.*
(Frequency changers)

VAYNSHTEYN, B.Z.

Valuable textbook pertaining to the safety of working conditions.
Prom.energ. 15 no.3:61-62 Mr '60. (MIRA 13:6)

1. Nauchno-issledovatel'skiy elektrotekhnicheskiy institut
Soveta narodnogo khozyaystva GSSR.
(Electric engineering--Safety measures)

VAYNSHTEYN, B.Z., inzh.

Measures for improving the operation of the UM frequency
tripler. Prom.energ. 15 no.2:27 P '60. (MIRA 13:5)
(Electric railroads--Equipment and supplies)
(Frequency changers)

VAYNSHTEYN, B.Z., inzh.

Remote control of pole switches. Elek.i tepl. tiaga 5 no.10:22-
23 0 '61. (MIRA 14:10)

(Remote control)
(Electric railroads--Switches)

A L 9657-66	
ACC NR: AP6000279	SOURCE CODE: UR/0232/65/000/010/0058/0061
AUTHOR: Vaynshteyn, B. Z. (Engineer)	
ORG: None	
TITLE: Repair and quality of electric equipment of electric locomotives	
SOURCE: Zheleznodorozhnyy transport, no. 10, 1965, 58-61	
TOPIC TAGS: locomotive, electric equipment,	reliability engineering
<p>ABSTRACT: The author reports that in 1963 there was an incidence of equipment failure at the rate of 2.29 per one million kilometers of d-c electric locomotive runs, and 8.45 per one million km of a-c locomotive runs. The economic factors of the unreliability of equipment are discussed, the need for taking the repairability of equipment into consideration is stressed, and it is pointed out that the design of equipment which is not only reliable, but simple to install and to repair, yields considerable savings since increased repairability more than compensates for the extra costs involved in the initial outlay. A comparison is made between a-c locomotive and d-c locomotive equipment, and the components most likely to fail are discussed, as well as some of the causes of their failure. It is noted in conclusion that an analysis of the statistical data of accidents due to the electrical equipment of a-c and d-c locomotives, together with the development of a methodology of full-scale tests and speeded up studies of models of new equipment under difficult operating conditions will make it possible to develop equipment with the necessary degree of reliability and repairability. It is suggested that this</p>	
Card 1/2	UDC: 621.335.2.04.019.3.001.2

: L 9657-66

ACC NR: AP6000279

0

work be performed as quickly as possible. Orig. art. has: 2 figures and 4 tables.

SUB CODE: 09,13 / SUBM DATE: None

Card 2/2

VAYNSHTEYN, D.M., inzh.; DVOROKOVSKIY, G.I., inzh.; MAKIN, N.P., inzh.

Using polyethylene pipes for automatic control systems. Mont. i
spets. rab. v stroi. 24 no. 12:11-12 D '62. (MIRA 15:12)
(Pipe, Plastic) (Automatic control)

VAYNSHTEYN, Daniil Maksovich; ARKHIPOV, V.G., inzh., retsenzent;
FESOSHNOV, M.N., inzh., retsenzent; DUGINA, N.A., tekhn. red.

[Installation of regulatory and automatic control devices]
Montazh priborov kontrolya i avtomaticheskogo regulirovaniya;
spravochnik. Moskva, Mashgiz, 1962. 302 p. (MIRA 15:12)
(Automatic control)

BANIT, P.G., inzhener; VAYNSHTYK, D.M.; GOL'DFARB, Yu.M., inzhener.

Radioactive slurry gauge for rotary kilns. TSement 22 no.5:13-15
S-O '56. (MIRA 10:1)
(Gamma rays--Industrial applications) (Kilns, Rotary)

VAYNSHTEYN, D. Ya.

115

PHASE I BOOK EXPLOITATION

SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th,
Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii
(Physicochemical Bases of Steel Making; Transactions of the
Fifth Conference on the Physicochemical Bases of Steelmaking)
Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted.
3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni
A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy
of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg.
Tech. Ed.: V. V. Mikhaylova.

Card 1/16

115

Physicochemical Bases of (Cont.)

SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

Card 2/16

Physicochemical Bases of (Cont.)

SOV/5411

Regime and the Gas Content in Metal

94

Povolotskiy, D. Ya., I. A. Lubenets, M. I. Kolosov, D. Ya. Vaynshteyn, and A. N. Morozov. Desiliconizing With Oxygen for Pig Iron Open-Hearth Furnaces

99

Shalimov, A. G., and A. K. Petrov. Investigating the Effectiveness of Treating the Molten Electric Steel by Synthetic Lime-Alumina Slag

106

[The investigation was conducted under the guidance of S. G. Voinov, Candidate of Technical Sciences, with the participation of staff members of TsNIChM (Central Scientific Research Institute of Ferrous Metallurgy) A. I. Osipov, Candidate of Technical Sciences, Ya. M. Bokshitskiy, Engineer, A. G. Shalimov, Candidate of Technical Sciences, L. F. Kosoy, Engineer, A. I. Polyakov, and staff members of the Zlatoustovskiy metallurgicheskiy zavod

Card 6/16

VAYNSHTEYN, E.

Payment by means of remittances. Den. 1 kred. 14 no.11:43-44
N '56. (MLRA 9:12)

(Bills of exchange)

VAYNSHTEYN, E.

Improve the disbursement operation of local budgets. Fin,SSSR
18 no.1:51-55 Ja '57. (MLRA 10:2)

(Finance)

VAYNSHTEYN, E.

"Collection of accounting and operational exercises in the State
Bank" by V. Shchelokov. Reviewed by E. Vainshtein. Den. 1 kred.
16 no.5:93-95 My '58. (MIRA 11:6)
(Banks and banking—Accounting)
(Shchelokov, V.)

VAYNSHTEYN, E.

Fulfillment of receipts and disbursements in the Soviet state
budget., Den. i kred. 16 no. 11:36-39 N '58. (MIRA 11:12)
(Budget)

VAYNSHTEYN, E.

A question that deserves attention. Fin. SSSR 19 no.10:42-47
0 '58. (MIRA 11:11)

(Odessa Province--Finance)

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nd shells. The width of the forbidden zone E was determined by measuring the energy gap between the short wave edge of the emission and the start of the absorption of the rare earth element in the compounds, which in this case coincided with the inflection point of the absorption curve at half the height of the main maximum. E for the oxide was about 1 ev, and in the hexaboride it was near 0

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CIA-RDP86-00513R001859120002-3

and never exceeded 0.1 ev. Orig. art. has: 1 figure

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L 04603-67 EWT(1)/EWP(e)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/GG/AT/WH

ACC NR: AP6033819

(N)

SOURCE CODE: UR/0289/66/000/002/0051/0058

AUTHOR: Tsukerman, V. G.; Lyubin, V. M.; Vaynshteyn, E. Ye.; Fedorova, G. A.

ORG: Institute of Inorganic Chemistry, Siberian Department, AN SSSR, Novosibirsk
(Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR)

TITLE: Photoelectric property of the selenium-arsenic-thallium semiconductor films
in the x-ray spectral region

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 2,
1966, 51-58

TOPIC TAGS: semiconductor film, arsenic selenide, thallium, arsenic, photoconductive film, x ray photography, TV tube, PHOTOELECTRIC PROPERTY, X RAY SPECTRUM, SELENIUM

ABSTRACT: The effect of thallium addition on the photoconductivity of amorphous selenium-arsenic semiconductor films, 0.3—7 μ thick, has been studied extensively in view of the expected improvement in photoelectric property of Se—As films. The first experimental data of the authors on the Se—As—Tl films were published elsewhere [FTT, 1965]. The films of $Tl_2Se \cdot 10As_2Se_3$; $Tl_2Se \cdot 2As_2Se_3$; $Tl_2Se \cdot As_2Se_3$; $2Tl_2Se \cdot As_2Se_3$; and $3Tl_2Se \cdot As_2Se_3$ were deposited on various substrates by vacuum vaporization. The $Tl_2Se \cdot As_2Se_3$ films were found to be the most promising in application in the x-ray spectral region and displayed greater photoeffect than the best thallium-free films in the visible spectral region. Radiosensitivity of the

Card 1/2

UDC: 541.123.3+546.23'19'683

L 04603-67

ACC NR: AP6033819

Tl₂Se·As₂Se₃ films versus thickness and preparation technique, x-ray dosimetric and volt-ampere characteristics, kinetics and spectral distribution in the 0.5—1.5 Å range of x-ray conductivity of the films were determined, as well as the quantum yield of the photoconductive effect and the energy of formation of a single electron-hole pair. A vidicon-type camera tube, photoconductive in the visible and x-ray spectral regions, was constructed with a Tl₂Se·As₂Se₃ film deposited on a beryllium face plate as a target. The first experiments with such a vidicon tube showed a short rise time (of the order of tenths of a second) of the system and the feasibility of visualization of the x-ray pictures and of measurement of the radiation intensity in different areas of the target. Orig. art. has: 8 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 30Jul65/ ORIG REF: 017/ ATD PRESS: 5100

Card

2/2 *thh*

VAYNSHTEYN, E.

Surplus stock of materials in public institutions. Fin. SSSR 22
no. 4:39-41 Ap '61. (MIRA 14:4)
(Public institutions--Equipment and supplies)
(Banks and banking)

VAYNSHTEYN, E.; KHATS'KO, Ye.

Practical training of students in State Bank branches. Den. 1
kred. 18 no.10:57-63 0 '60. (MIRA 13:10)
(Finance--Study and teaching)
(Banks and banking)

BERLIN, A.A.; VAYNSHTEYN, E.F.; CHERKASHIN, M.I.; MOSHKOVSKIY, Yu.Sh.

Polymers with a conjugate bond system in macromolecular chains. Part
32; Preparation and properties of 1-polyhexyne. Vysokom.sped. 5 no.9:
1354-1359 8 '63. (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR.

Voyzobteym R.G.

24(7)

PHASE I BOOK EXPLORATION

L'vov. Universitet

Materialy I Vsesoyuznogo soveshaniya po spektroskopii, 1956.
t. II: Atomnaya spektroskopiya (Materials of the 10th All-Union
Conference on Spectroscopy, 1956. Vol. 2: Atomic Spectroscopy)
L'vov: L'vovskogo univ., 1958. 568 p. (Series: Its:
Vizhishchii sbornik, vyp. 9(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po
spektroskopii.

Editorial Board: G.S. Landsberg, Academician, (Resp. Ed.);
L.S. Rapoport, Doctor of Physical and Mathematical Sciences;
L.S. Pribludnyy, Doctor of Physical and Mathematical Sciences;
V.D. Koritskiy, Doctor of Physical and Mathematical Sciences;
V.D. Koritskiy, Candidate of Technical Sciences; S.M. Rayzakiy,
Candidate of Physical and Mathematical Sciences; L.K. Klimovskaya,
Candidate of Physical and Mathematical Sciences; V.S. Milyanchuk
(Deceased), Doctor of Physical and Mathematical Sciences; A.Ye.
Ginsburman, Doctor of Physical and Mathematical Sciences;
M.I. S.L. Gazar, Tech. Ed.; V.V. Naruyuk.

NOTE: This book is intended for scientists and researchers in
the field of spectroscopy, as well as for technical personnel
using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies
of atomic spectroscopy presented at the 10th All-Union Confer-
ence on Spectroscopy in 1956. The studies were carried out by
members of scientific and technical institutes and include
extensive bibliographies of Soviet and other sources. The
studies cover many phases of spectroscopy: methods for controlling
electromagnetic radiation, photochemical methods for controlling
uranium production, physical and chemical methods for controlling
optical and spectroscopy, the combustion theory, spectrum analysis of ores
and minerals, photographic methods for quantitative analysis of the
hydrogen content of metals and alloys, spectral determination of the
analysis of spectral lines, spark spectrographic analysis,
statistical study of variation in the parameters of calibration
curves, determination of traces of metals, spectrum analysis in
metallurgy, thermochemistry in metallurgy, and principles and
practice of spectrochemical analysis.

Card 2/31

Materials of the 10th All-Union Conference (Cont.)

---Kopytsev, E.G., and L.I. Pavlenko. Studying the Effect
of Total Rock Composition on the Results of Quantitative
Spectral Determination of the Mo Content of Granitoids 120

Kopytsev, E.G., and L.I. Pavlenko. The Vertical Sun Telescope and the Small-
size Diffraction Spectrograph of High Resolving Power at the
L'vovskaya astronomicheskaya observatoriya (L'vov Observatory) 123

Kopytsev, E.G., and L.I. Pavlenko. The PECO-17 and PECO-18 Photoelectric Optical
Amplifiers for Recording Extremely Small Infrared Radiations 125

Malyutin, L.P., A.M. Mogilevskiy, and I.S. Abramson. Improving
the Stability of Photomultiplier for the Photoelectric
Recording of Spectra 129

Poyshchikov, I.V. Effective Spectral Slit Width of a
Monochromator When Aberrations Are Present 133

Card 9/31

VAYNSHTEYN, Eduard Grigor'yevich; YAMPOL'SKIY, Moisey Markovich;
KORNEYEVA, R., red.; LEBEDEV, A., tekhn.red.

[Issuing credit for fixed assets] Kreditovanie zatrat v
osnovnye fondy. Moskva, Gosfinizdat, 1960. 78 p.
(Credit) (MIRA 13:7)

VAYNSHTEYN, Eduard Grigor'yevich; KRAMAROVSKIY, D.

[Collection of problems in banking calculations] Sbornik zadach
po bankovskim vychisleniyam. Moskva, Gosizdat, 1958. 79 p.
(MIRA 13:3)

(Banks and banking--Accounting)

VAYNSHTEYN, B.K., doktor fiz.-mat.nauk

Problem of atomic structure of biological molecules. Vest.AN SSSR
30 no.12:20-26 D '60. (MIRA 13:12)

(Biochemistry) (Atoms)

VAYNSHTEYN, E.O.

USSR/ Analytical Chemistry. Analysis of Inorganic
Substances.

G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27141.

Author : E.O. Vaynshteyn, V.V. Korolev.

Title : Spectral Determination of Sodium and Potassium
in Silicate Rocks.

Orig Pub: Zh. analit. khimii, 1956, 11, No. 5, 627 - 633.

Abstract: The sample is mixed with Li_2CO_3 , CuO and charcoal powder in the ratio of 1 : 0.5 : 1 : 1.5 and packed in the carbon electrode. The spectra are excited in an alternating current arc at 5 a and photographed with the spectrograph ISP-51 on "Infrachrom-840" plates. The analytical lines are: Na - 8194, 8183; K - 7664, 7696, and Li - 8126 A. The graphs are plotted on co-ordinates ΔS and $\log C$; in case of concentration greater

Card 1/2

USSR/ Analytical Chemistry. Analysis of Inorganic
Substances.

G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27141.

than 8%, they are plotted on co-ordinates line width and $\log C$. The width of a line is determined as the difference between two readings on the barrel of the micrometric screw of the photometer corresponding to two points of the line, the blackening of which is equal to the blackening of the comparison line. The error of the analysis does not depend on the gross composition of samples and is 4 to 5%.

Card 2/2

VAYNSHTEYN, E.S.; CHERNOSVITOV, Yu.L., nauchnyy red.; NEMANOVA, G.F.,
red. izd-va; BYKOVA, V.V., tekhn. red.

[Industry's requirements as to quality of mineral raw materials] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Izd.2., perer. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane neдр. No.48. [Natural colors (mineral pigments)] Prirodnoe krasochnoe syr'e (Zemlianye pigmenty). Nauchn. red. IU.L. Chernosvitov. 1961. 30 p. (MIRA 14:11)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.

(Pigments)

VAYNSHTEYN, Emmanuil Solomonovich; KENINA, L.P., red. izd-va;
SHMAKOVA, T.M., tekhn. red.

[Natural pigments] Prirodnye pigmenty. Moskva, Gosgeoltekh-
izdat, 1962. 20 p. (MIRA 16:6)
(Pigments)

used in a study of the x-ray K-absorption spectra of iron in (I) a polyferrocene or unidentified
molecular wt. m.p. = 300-360°C; (II) polybutylferrocene, mol. wt. 4450, m.p. 200-240°C;
... 100-200 and polyvinylferrocene mol. wt.

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X-ray spectroscopic study of the bending of mica
 crystals by use of Johann's spectrograph. R. B. Val-
 shstein, D. B. Gogoberidze and M. N. Pirova. *J. Exptl.*
Theor. Phys. (U. S. S. R.) 10, 280-4 (1940).—The
 authors obtained a no. of x-ray photographs with bent
 mica crystal to a spectrograph of the Johann type. To
 def. the mechanism of deformation, some photographs
 which were out of focus were taken. These photographs
 show some kind of fine structure, which indicates that
 bent mica acts as a row of small crystals located close to
 each other. The same point of view was expressed by
 Cauchois (C. A. 27, 454).
 R. Gamow

METALLURGICAL LITERATURE CLASSIFICATION
 RELATION

Study of bent quartz crystals by means of a Caughole spectrograph.
E. Yainachian (*Compt. rend. Acad. Sci. U.R.S.S.*, 1942, 24, 107-109).--The general picture of deformation observed in mica is reproduced in its main features in crystals of quartz. The phenomenon described by Watson (*A.*, 1938, 1, 99) should be accounted for by the breaking of the crystal into separate pieces. I. S. F.

Al-4, Geological Survey

Dr. Al-4.

X-Ray spectrographic investigation of bent mica crystals with the aid of a Johann spectrograph. E. Vainshtein (Compt. rend. Acad. Sci. U. S. S. R., 1962, 253-255).--Spectrographic examination of bent mica crystals shows that in the action of bending the crystals are split into smaller, crystals, the latter changing their orientation one to another without being individually distorted to any appreciable extent.

C. R. H.

Regularities in the x-ray absorption spectra of elements of the Fe group. I. S. Borovskii and R. E. Vainshteyn. *Bull. acad. sci. U.R.S.S. Classe sci. chim.* 1962, 397-18 (English summary).--The new math.-theoretical treatment of the expl. material available permits the connection of the appearance of knicks on the long-wave side of the absorption curve with the presence of unfilled levels under the Fermi surface in the Fe group. This peculiarity is finally connected with other specific properties of these elements (e.g., ferromagnetism), and may be utilized in

able in an ether furnace and connect hermetically with the Wetzlar tube and anhydrometer. After dissolving the coal filter the contents of the test tube and wash the residue several times with 10 cc. anthracene oil. Dry the residue in a vacuum drying oven at 100° or in an ordinary drying oven at 105° to constant weight, and contain 1 cc. of the oil. Heat the filtrate with a large amt. of benzene (1:5 to 1:1). The dissolved coal ppts. in the form of a fine-grained residue. Let the mixt. stand overnight, filter, wash several times with benzene (heated if necessary), dry and weigh. Transfer the 2nd filtrate (soln. of anthracene oil in benzene) into a 2-l. Claysen flask, distil off the benzene first at ordinary pressure and later in *vacuo* until its complete removal. Add 1:5 to 1 of petroleum ether to the residue and let the viscous tarry mass stand overnight. Decant the soln., wash the ppt. with several portions of petroleum ether, dissolve in a small amt. of benzene and transfer quantitatively to a porcelain dish. Heat the dish on a water bath to remove benzene and dry in a vacuum desiccator to const. wt. The substance consists of the changed part of anthracene oil and of the benzene-sol. part of the coal. Place the 3rd filtrate consisting of anthracene oil in petroleum ether in a Claysen flask to remove petroleum ether. Coal in most cases dissolves at 350°. The solv. of coals in anthracene oil can be used to det. its suitability for producing fused coals. The coking properties of the artificially oxidized coals (coals which produce no coke or very little coke, but yield 35-40% and more of substances sol. in anthracene oil at 350°) can be restored by grinding them to less than 43 μ size. The coking properties of the naturally oxidized coals (weathered), which possess the same properties as those of the artificially oxidized coals are not restored by grinding them to less than 43 μ size. Dissolving of coals in anthracene oil can be used to det. their reduction during slight hydration and to det. the changes taking place during the plastic period of coking. The degree of soln. of coal in anthracene oil depends on the age and the petrographic compn. of the coal. See literature references.

W. R. Hunt

En. 1160

Determination of valency from X-ray absorption spectra. E. Weinstein (*Acta Physicochim. U.R.S.S.*, 1942, 18, 321—330).—The modification of the electron configuration of an atom entering a chemical compound can be determined from an examination of the X-ray absorption curve, as the frequency of the Fermi limit and the selective max. are altered. The electrovalent link is discussed. The rule that the solubility of one metal in another, if a face-centred cubic lattice is formed, is limited by the fact that the electron concn. of the alloy cannot be >1.36 does not hold for certain cases, which are discussed.

A. J. 31.

131 16-1

10. 16 16 m

Absorption spectra of the iron group. I. B. Borovski and E. F. Vainshteyn (*Compt. rend. Acad. Sci. U.R.S.S.*, 1942, **26**, 130—133).—Special attention is called to the influence of symmetry of the wave function of the initial state of transition $\psi_i (KL_1 - 1s; 2s; L_{n,m} - 2p)$ on the intensity of distribution in the fundamental edge and at a distance of 80 e.v. from it. Thus for $W-L_1$ the edge has knicks on the long-wave regions without white lines on the short-wave side. For $W-L_1, W-L_2; Cu-L_2, Cu-L_3; Ni-L_2$ simple fundamental edges with bright white lines on the short-wave side exist, which are lacking in ^{60}Zn and ^{197}Au . A new method of analysis leads to an identification of the short-wave max. $(\nu/R)L_nL_m$ with the line $(\nu/R)L_1$ of the L_1 edges, and the inflexion lines are hence found to shift 6—8 e.v. For ionic compounds the max. of the absorption lines on the frequency scale is shifted only 1.5 to 1.8 e.v., but the shift of the (ν_e/R) term reaches 7 e.v. for ions of max. valency.

J. O'M.-B.

1

M

ON THE DETERMINATION OF VALENCY FROM THE X RAY ABSORPTION SPECTRA. E. VAINSHTEIN (IZVEST AKAD. NAUK S.S.S.R., 1942, (Khim) (6) 406-412) (In Russian) The displacement of the point of inflection of the curve relating absorption coeff. to frequency during the change of state of atoms in metals and alloys, enables the degree of ionization of the atoms to be determined. N/A.

ASS-31A METALLURGICAL LITERATURE CLASSIFICATION

Crystal chemistry of the Laves phases. G. B. Bokh and H. H. Vainichina (*Compt. rend. Acad. Sci. U.R.S.S.*, 1963, 60, 233-235, and *Dokl. Akad. Sci. U.R.S.S.*, Cl. Sci. Chem., 1963, 241-247). — The intermetallic compounds which do not fit into the scope of the classical ideas of valency (Laves phases) have the formula AB_2 or $AB_2B'_2$. The structures of Laves phases are characterised by six B atoms as its closest neighbours; this accounts for the fact that similar structures are not observed in ionic compounds. These structures permit no variation in the ratio between the radii of the components; contact of uniform spheres occurs with $R_A:R_B = 1.225$ and the $A-B$ distance $(a/8)\sqrt{11}$. The experimental val. for $R_A:R_B$ lie between 1.11 and 1.33 (calc. val. 1.09-1.34). Contrary to the views of Schulze, polarisation plays an important role, although mutual polarisation may sometimes be disguised by the influence of individual characters of the electronic structures of constituent atoms of the Laves phase. Elements participating in Laves phase formation are classed as (a) elements acting as A component only (Na, K, Ca, Ti, Ag, Pb, V, Cr, Mo, Re), (b) elements acting as B component only (Zn, Be, Co, Ni, Al), and (c) those capable of acting as either A or B (Mn, Fe, Cu, Au, Hg, Mg). Laves phases should not be regarded as an independent group of intermetallic compounds, and the term should be applied only to a definite type of crystal structure. W. R. A.

The Resistance of Magnesium-Lead Alloys to Attack by Sulphuric Acid.
 V. E. Vainstein and E. E. Vainstein (*Izvest. Akad. Nauk S.S.S.R.*, 1943,
 [Khim.], (4), 312-313).—[In Russian.] The loss in weight per cm.² per hr.
 of magnesium, lead, and 11 magnesium-lead alloys in 0.1N-H₂SO₄ was deter-
 mined. The loss in weight decreases steadily as lead is added to magnesium;
 it then remains fairly uniform over the range (approx. 25-65% lead) in which
 eutectic is present, at a value about one-third that for pure magnesium.
 As soon as excess Mg₂Pb appears the rate of attack increases and reaches a
 maximum at ~80% lead, which corresponds to the pure compound. There-
 after the rate decreases rapidly, and between 97 and 100% lead is practically
 zero.—N. B. V.

10 On the Nature of the Chemical Bond in Metals and Metallic Compounds.
E. Vainshtein (*Uspekhi Khim.*, 1943, 12, (1), 40-61). [In Russian.] A
review. N. A.

M

X-Ray Investigation of the Structure of the Liquid State. E. F. Vainstein and E. A. Poray-Koshits (*Dzpekh* KAim., 1943, 12, (6), 409-437). (In Russian.) A review of the quasi-crystalline and cybotaxis theories of the liquid state. Discussion of the theoretical basis of both and the interpretation of the distribution function is supplemented by experimental results. 105 references are given.—V. K.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

The nature of the chemical bond in some inorganic compounds. (I. I. Likht and K. K. Yatsushin, (Compt. rend. acad. sci. U. R. S. S. 149, 307-9 (1953)) (in English); *Proc. Acad. Sci. U. R. S. S.* 149, 307-9 (1953)) (II). A structural picture is offered for Cl_2 , C_2 , AlCl_3 (I) and $[\text{Pt}(\text{NH}_3)_2(\text{C}_2\text{H}_4)_2\text{Cl}_2]$ (II). A chem. bond, termed *invariant* or *dimeric*, is postulated to exist between the metallic atoms of the dimer. Involved in this bond are the deeper-lying $2p$ electrons of Al or $5d$ electrons of Pt, since the exterior valency electrons are already used in the formation of the monomer. As substantiation, B., and V. show that their picture of the dimeric bond is in accord with (1) the x-ray analysis of the dimer; (2) the stereochemical structure of the compds. and the symmetry of the wave functions of the electrons forming the bond; (3) the quantum-mechanical Al-Pt bond distances; (4) a evaluation of the Al-Al and Pt-Pt bond distances; (5) measurement of the dipole moment of I; and (6) the quadriments of the behavior of Pt as observed for II. The valent chem. behavior of Al atoms entirely eliminates short distance between the metallic atoms as intermediates any structural picture involving Cl atoms as intermediary links of the bond; the catalytic activity of AlCl_3 may be related to the structure of the dimer.

G. Calvin Brous

G. Calvin Hrouse

The influence of chemical bond on the asymmetry of lines of the emission x-ray spectrum in various elements.
F. E. Valnshtein. Doklady Akad. Nauk S. S. R. 40, 116-19(1943); Compl. rend. acad. sci. U. R. S. 40, 102-116(1943); cf. C. A. 30, 6040^a.-- Exptl. data show that the asymmetry index (AI) of the K α lines gradually increases as one approaches those elements with unfilled 3d shells as compared with nearly perfect symmetry of the corresponding lines of other elements. The AI attains a max. of 1.6 with Fe, after which it decreases again. The AI of both Ca and Zn is nearly 1. Calens. show that the observed deviations of the AI from unity can be accounted for by interactions between 2p and 3d electrons. The AI of that series of transition elements which includes the Fe group can be correlated with magnetic properties and with the electronic configuration of such elements in both the free and the chemically combined condition. J. W. Perry

ca

Chemical stability of Mg-Cu alloys in H_2SO_4 and NH_4Cl .
V. R. Valashchik and R. E. Valashchik. *Compt. rend. acad. sci. U. R. S. S.* 40, 318-21 (1943) (in English).—Loss in wt. per hr. per unit area) observed on exposing alloys of Cu and Mg, contg. up to 30% Mg, to 0.1 N H_2SO_4 and 0.1 N NH_4Cl are interpreted on the basis of the Cu-Mg phase diagram.
I. W. Perry

ASME-31 A METALLURGICAL LITERATURE CLASSIFICATION

An x-ray study of sulfides and chlorides. R. E. Valenshtein. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1944, 382-9 (English summary).—The shift in wave length (λ) of the absorption edge in different crystal lattices is well represented by $\lambda = \lambda_0 - (\delta/r^2)$, where λ_0 is the absorption of the anion at infinite sepn. from the cation, r the width of the lattice and δ is a const. for a given type of lattice and is proportional to its polarizability. λ_0 for chlorides and sulfides of the Fe group differs by 3.3 and 6 X-units from those of other sulfides and chlorides. The data indicate that in the sulfides of this group the linkage is more metallic than saltlike. The S anion comprises about 30% of the metallic component of the link. The sulfides studied were FeS, NiS, CoS, CuS, ZnS, CdS, PbS, MgS, CaS, BaS, MnS, and Na₂S; the chlorides were BiCl₃, NaCl, KCl, RbCl, CsCl, NH₄Cl, CuCl, AgCl, CaCl₂, MgCl₂, SrCl₂, NiCl₂, FeCl₂, and MnCl₂. H. M. Leicester

7

CA

X-ray methods in analytical chemistry. R. E. Vain-
shlein. *Uspekhi Khimii* 13, 64-79 (1944). -- Review cov-
ering x-ray spectral methods of elementary analysis,
determ. of the valence of elements in compds., chem. analy-
sis by means of Debye graphs and the x-ray microphoto-
graphic methods of analysis. 87 references, largely to
Russian literature. P. H. Nathmann

ASACIL METALLURGICAL LITERATURE CLASSIFICATION

Bu rks

Structure of the K-edge of X-ray absorption spectra of atoms in the molecules of gas. E. E. Vainshtein and K. I. Narbut (Dokl. Akad. Sci. U.R.S.S., *Chim.*, 1948, 71—73).—Mathematical. Formulas are developed for the structure of the K-absorption edge, for calculating the intensity of the selective lines, and for connecting these lines with degree of ionisation of the gas. There is a connexion between the structure of the K-edge and the at. no. of the element. R. To.

PA 4T93

WEINSTEIN, E. E.

USSR/Physics
X-ray spectra
Iron group

1945

"Influence Exerted by the Chemical Bond on the Symmetry of the K-alpha 1,2 Lines in the X-ray Spectrum of the Elements of the Iron Group," E. E. Weinstein and I. B. Borovsky, 4 pp

"CR Acad Sci" Vol XLIX, No 5

Studies on K-alpha 1,2 lines due to 2 p-1s transitions in the atom, with a bent-crystal spectrograph.

4T93

PA 34T65

USSR/ Nuclear Physics - Neutrons, Thermal Jul 1946
Nuclear Physics - Neutrons - Diffusion

"Dispersion of Thermal Neutrons in Metals," E. Ye.
Vaynshteyn, 11 pp

"Priroda" No 7

Author gives a brief summary of the work which was
undertaken by various American scientists after
Watteler and Beyer disclosed the fact that there is a
relationship between permeation of slow neutrons in
matter and the physical dimensions of the solid
bodies. He gives a brief description of the results
of X-ray and electromographic observations which were
conducted on the dispersion of neutrons in metals.

ID

34T65

USSR/ Nuclear Physics - Neutrons, Jul 1946
Thermal (Contd)

Among the scientists mentioned are Mir, Dunning, and
Clement.

R. VE.

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VAYNSHTEYN,

1ST AND 2ND CODES																										3RD AND 4TH CODES																									
PRECEDENCE AND PRIORITY MARKS																																																			
<p><i>M</i></p> <p>X-Ray Spectroscopic Study of the Structure of Metals and Alloys. E. E. Vainshtein (Usp. Akad., 1948, 15, (3), 200-201) [In Russian]. A review, comprising the elements of the theory of metals, X ray spectroscopic study of the energy spectra of electrons in metals and alloys, X ray spectroscopic study of the structure of the transition elements, and the properties of the sulphides of the transition elements. N. A.</p>																																																			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
<p>CLASSIFICATION</p>																																																			

VEYNSHTEYN, E. F.
VAYNSHTEYN, Ye. Ye.

PA 21T113

USSR/Physics
Spectrographs
X-rays - Application

Sep 1946

"A New Type of X-ray Focusing Spectrograph with a Curved Crystal," E.F.Veynshteyn, K.I.Narbutt, Laboratory of Geochemical Problems and X-ray Chemical Laboratory, imeni V. I.Vernadskiy, Institute of Geological Sciences, Academy of Sciences of the USSR, 4 pp

"Comptes Rendus (Doklady)" Vol LIII, No 8

A description is given of an improved type of spectrograph obeying more closely the equation for the resulting intensity of the scattered wave in an arbitrary point of observation.

21T113

3

High-intensity camera for x-ray analysis of structure with monochromatic rays. E. E. Valnshteyn and K. I. Narbut. *Zavodskaya Lab.* 13, 599-610 (1947).—The x-ray focusing spectrograph with a curved crystal (C.A. 41, 4713a) was changed into a powerful focusing app. for analysis of structure with monochromatic rays. One variation of the camera is suitable for work involving small Bragg angles, particularly in studying the structure of liquid and glass-forming substances; another variation is suitable for work involving large Bragg angles.

B. Z. Kamich

FA 2/49T13

VAYNSHTEYN, E. YE.

USSR/Chemistry - Rare Earths
Chemistry - Periodic System

Jun 48

"Rare Earths and Their Position in the Natural
System of Chemical Elements," E. Ye. Vaynshteyn,
15 pp

"Priroda" No 6

Presents characteristics and properties of rare
earths and their classification in the periodic
system.

2/49T13

1ST AND 2ND CROSS										3RD AND 4TH CROSS									
PROCESSES AND PROPERTIES INDEX																			
3																			
<p>3939 Quantitative Roentgen-Spectrum Analysis of Rare-Earth Elements by the Method of "Inner Coefficients." E. E. Valnshtein and N. V. Turanskaya. Zhur. Analiticheskoi Khim. 4, 323-31(1949)(in Russian).</p> <p>Given a mixture containing several rare-earth elements A, B, etc., the authors apply the name "inner coefficient of A and B" to the function $k = (x/y)/(s_A/s_B)$, where x and y are the concentrations of A and B, and s_A and s_B are the degrees of the darkening produced on a photographic plate by two close lines, L_{β} and L_{α}, of the mixture's x-ray spectrum, L_{β} belonging to A, and L_{α} to B. The authors found that, for any pair of rare earths so far examined, k is independent of the presence of other elements in the mixture, so that from empirically constructed curves for k of various pairs and the measured ratios of darkenings, the relative contents of various components in a mixture can be determined. If, further, a known quantity b of B is added to a mixture of A and B, the equation $k_1 = [x/(y + b)]/(s_A/s_B)$ is obtained, which, together with the original $k = (x/y)/(s_A/s_B)$, permits the determination of the absolute values of x and y. It is seen that only one such addition is necessary for the complete analysis in a case of many components. The method was tested on Ce, Nd, Pr, La, and Ba; the error did not exceed 4%.</p>																			
ASB-54A METALLURGICAL LITERATURE CLASSIFICATION										E-Z-11111111111111111111									
1234567891011121314151617181920										2122232425262728293031323334353637383940									

CA

Structure of the x-ray K-absorption limit of nickel in solution. E. Yaluzhstein. *Doklady Akad. Nauk S.S.S.R.* 69, 771 (1949). -- The fine structure of the K-absorption limit was detd. in 70-hr. exposures, in solns. corresponding to 5.7- μ thickness of Ni metal. In aq. and alc. solns. of simple salts, NiCl_2 and NiSO_4 , and in solns. of $[\text{Ni}(\text{NH}_3)_6]^{2+}$, the structure of the limit is identical, without perturbations on the long-wave side, and with coinciding group of fluctuations on the short-wave side. A different structure on both sides of the edge appears in solns. of $[\text{Ni}(\text{CN})_4]^{2-}$. This phenomenon can be interpreted by a superposition of 2 simple limits corresponding, resp., to the atom and to the ion. The closeness of the observed shift of the main max. in $[\text{Ni}(\text{CN})_4]^{2-}$ (24 e.v.) and of the energy of double ionization of the Ni atom supports this interpretation. N. Thon

VAYNSHTEYN, E. YE.

24(8)	PHASE I BOOK EXPLOITATION	30V/2809
	Academiya nauk SSSR. Otdeleniye khimicheskikh nauk	
	Termodinamika i stroeniye rastvorov: trudy sovetskaniya... (Thermodynamics and Structure of Solutions; Transactions of the Conference held January 27-30, 1958) Moscow, Izd-vo AN SSSR, 1959. 295 p. 3,000 copies printed.	
	Ed.: M. I. Shakhparonov, Doctor of Chemical Sciences; Ed. of Publishing House: M. G. Yegorov; Tech. Ed.: T. V. Polyakova.	
	PURPOSE: This book is intended for physicists, chemists, and chemical engineers.	
	COVERAGES: This collection of papers was originally presented at the Conference on Thermodynamics and Structure of Solutions sponsored by the Section of Chemical Physics of the Academy of Sciences of the USSR and the Institute of Chemistry of Moscow State University, and held in Moscow on January 27-30, 1958. Officers of the conference are listed in the foreword. A list of other reports also read at the conference, but not included in this book, are given. Among the problems treated in this work are: electrolytic solutions, ultrasonic measurement, dielectric and thermodynamic properties of various mixtures, spectro- scopic analysis, etc. References accompany individual articles.	
	Moshchina, G. F. Molecular Dispersion of Light in Solutions of Nonelectrolytes	233
	Shlenkina, M. O., and M. I. Shakhparonov. Verification of the theory of Molecular Dispersion of Light by Means of Binary Solutions	239
	Vuks, M. P. Anisotropic Dispersion of Light and Its Use in Studying Liquids and Solutions	242
	Mishchenko, K. P., and A. M. Boncharev. Partial Molar Entropies in Systems Acetic Acid - Water and Formic Acid - Water and the Structure of These Solutions	245
	Chelintseva, V. M. Spectroscopic Methods for Studying the Structure of Solutions	251
	Solov, M. V. Spectroscopic Methods for Studying Complexes in Solution	259
	Zelinskii, V. F., V. P. Kolobkov, and I. I. Ryznikova. Relationship Between Electronic Absorption Spectra and Radiation of Solutions of Organic Compounds and the Chemical Nature of Solvents	262
	Zayatskaya, E. Ya., and I. I. Antikova-Krasnyaya. Study of Solvation of Ions in Solutions with the Aid of Optical Absorption Spectra	266
	Antipova-Krasnyaya, I. I. Study of the Effect of the Surrounding Medium on the State of the Chiral Ion by Means of Absorption Spectra of Solutions and Alum Crystals	270
	Vasenko, Ye. M., A. P. Chernyavskaya, and M. V. Chernaya. Infrared Spectra of Electrolytic Solutions in Formamide	273
	Lazebnik, V. I., Ye. O. Baranova, L. D. Derkachova, and L. V. Lazebnik. Study of Association in Concentrated Solutions of Dyes by Means of Absorption and Luminescence Spectra	275
	Levashin, L. V. Effect of Ionization and Association on Optical Properties of Complex Organic Molecules	285

Card 2/4

VAYNSHTEYN, E.Ye.

AUTHOR: Bilimovich, G. M.
 TITLE: Section of Analytical Chemistry of the VIII Mendeleev Congress on General and Applied Chemistry
 PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, No 4, pp 511-512 (USSR)

ABSTRACT: Approximately 300 persons participated in the work of the Department of Analytical Chemistry, among them representatives of various scientific research institutions, higher schools and industrial enterprises in Russia, and scientists from China, Bulgaria, the GDR, Poland, Hungary, and Italy. Approximately 70 reports were heard. In his opening speech I. V. Alimskiy reported on the achieved results in the field of modern problems of analytical chemistry. J. V. Kuznetsov reported on the application of physico-chemical analysis in heterogeneous systems for the solution of a series of problems of analytical chemistry. I. I. Kuznetsov reported on modern aims in the use of organic reagents. A. K. Babko showed at the example of halides and thiocyanates the position of the corresponding central atoms in the stability complexes the correlation between the stability of complexes and the position of the corresponding central atoms in the periodic system. L. M. Zakhara and V. M. Babitsky lectured on the stability of oximes of Cu, Co, and Ni as depending on the structure of the oxime molecule. K. V. Zakhara lectured on the formation of analytical chemistry was dealt with in the lectures of K. V. Zakhara and co-workers and A. I. Pokorniy and K. A. Polakovich. A large number of lectures dealt with the use of new organic reagents in analysis: A. I. Buzar and M. A. Ivanova reported on the application of dialkyl and diethyl dithiophosphoric acid for the separation of elements. A. I. Borzov used phosphoric acid and aryl phosphinic acid. K. P. Lestovsky and his co-workers treated some properties of new complexes. The lecture of I. A. Malitskiy, G. G. Shitaya and A. I. Kozlov dealt with the photometric determination of a series of organic halochromes. A. I. Chernomir lectured on the use of halochromes in analytical chemistry. J. V. Zakhara and M. A. Malitskiy lectured on the determination of bismuth using differential spectrophotometry. A. I. Chernomir and I. A. Malitskiy reported on the use of ultraviolet spectroscopy. Several lectures dealt with methodical and theoretical problems of spectrum analysis (K. V. Zakhara, G. A. Shakhmatov, E. Ye. Vaynshteyn and co-workers). A. K. Polakovich and K. S. Nikonova treated the perfection of flame photometry. Several lectures dealt with the determination of elements by polarography (A. I. Shukhmatov, A. I. Buldakovskiy and I. A. Izrael; V. P. Gubanov, I. A. Shakhmatov and Yu. S. Lyalikov and co-workers). The lecture of K. I. Malitskiy and V. P. Gubanov treated the use of amperometric titration with two electrodes in the determination of uranium and thorium. M. M. Selyavin showed possibilities of predicting the conditions of chromatographic separation of elements based on their position in the periodic system. I. A. Belyavskaya reported on the use of ion exchange in the investigation of the state of substances in solution. A. S. Varnidub and V. I. Petrashev lectured on the chromatographic separation of a series of elements. The lecture of A. A. Zakhvatkin and K. M. Zakhvatkin and associates reported on the chromatographic proof of sulfonamide preparations in the chromatographic proof of sulfonamide preparations. The lecture of the organics. G. L. Strobilov and associates treated the application of high polymers in chromatographic analysis. The lecture of A. A. Zakhvatkin and K. M. Zakhvatkin, G. L. Strobilov and associates reported on the chromatographic investigation of the complex formation of the co-precipitation and adsorption of ions of rare elements by means of ion exchange. I. P. Alimskiy, G. L. Strobilov, in the field of elementary organic microanalysis (Bilimovich). In the lecture, G. L. Strobilov and V. A. Klimova with associates reported on the simultaneous determination of several elements from one weighed portion of boron, fluorine and silicon-organic compounds.

Card 1/4

Card 2/4

Card 3/4

24(7), 24(3)

AUTHORS:

Vaynshteyn, E. Ye., Kotlyar, B. I.,
Shapiro, G. A.

30V/20-125-1-13/67

TITLE:

Investigation of the Fine Structure of X-ray Absorption Spectra of Iron in Some Antiferromagnetics and Ferrites (Issledovaniye tonkoy struktury rentgenovskikh spektrov pogloshcheniya zheleza v nekotorykh antiferromagnetikakh i ferritakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 55-58 (USSR)

ABSTRACT:

In the authors' opinion this is the first experimental investigation into the subject given in the title. The purpose is to clarify the direction and the magnitude of the variations in the fine structure of X-ray-K-absorption spectra of iron in antiferromagnetics and ferrites. These variations are related to those occurring in the magnetic state of the said substances. A further aim is that of finding ways for the most suitable development of these investigations. The antiferromagnetic modification of iron oxide ($\alpha\text{-Fe}_2\text{O}_3$) and the group of ferrites Ni, Co, Mn, Sr and Zn were selected for the experiment. The authors used a focusing X-ray spectrograph

Card 1/4

Investigation of the Fine Structure of X-ray
Absorption Spectra of Iron in Some Antiferro-
magnetics and Ferrites

SOV/20-125-1-13/67

of the Iogann type. Some of the spectra of $\alpha\text{-Fe}_2\text{O}_3$ and $\text{MnO.Fe}_2\text{O}_3$ recorded in this way are illustrated in 2 diagrams.

A remarkable (almost treble for iron oxide and double for $\text{MnO.Fe}_2\text{O}_3$) change of absorber thickness influences but very little the relative intensity of the longwave range in the absorption spectrum of iron in these compounds, leads, however, to an impoverishment in the fluctuations and to a distortion of the true ratio of their intensities at the shortwave side of the absorption limit. It was found by a similar series of experiments that the optimum density of the absorber corresponds to the density 5 mg/cm^2 . Two further diagrams show the group of the absorption edges of iron in various compounds and the absorption edge of iron in iron ferrite and iron oxide. The following provisional conclusions were drawn from the experimental data: 1) the wavelength of the first absorption maximum and the position of the center of the absorption edge of iron in $\alpha\text{-Fe}_2\text{O}_3$ in the ferrites investigated practically

Card 2/4

do not depend on the magnetic state of the substance. In the

Investigation of the Fine Structure of X-ray
Absorption Spectra of Iron in Some Antiferro-
magnetics and Ferrites

SOV/20-125-1-13/67

group of the ferrites investigated the said wavelength also does not depend on the nature of the bivalent metal. 2) The ordered distribution of the electron spins in the antiferromagnetic lowers the relative intensity of the longwave range in the absorption spectrum of the transition metal, as compared to the paramagnetic or ferromagnetic state of the substance. 3) At the shortwave side of the X-ray absorption spectra of all ferrites investigated here a more or less clearly marked fine structure was observed. 4) These conclusions are merely of a provisional nature and must therefore be substantiated by further purposive and systematic experiments. Some of these are being carried out at present in the authors' laboratory. There are 4 figures and 12 references, 5 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I.
Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and
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Card 3/4

Investigation of the Fine Structure of X-ray
Absorption Spectra of Iron in Some Antiferro-
magnetics and Ferrites

SOV/20-125+1-13/67

K. D. Ushinskogo (Odessa Pedagogical Institute imeni K. D.
Ushinskiy)

PRESENTED: November 19, 1958, by A. P. Vinogradov, Academician

SUBMITTED: November 17, 1958

Card 4/4

VAYNSHTEYN, E. Ye.

"X-Ray-Spectroscopic Investigation of the Structure of Solids." Thesis for degree of Dr. Physico-Mathematical Sci. Sub 27 Feb 50, Physics Inst imeni P. N. Lebedev, Acad Sci

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

24(4)

PHASE I BOOK EXPLOITATION SOV/1508

Vaynshteyn, E. Ye.

Rentgenovskiye spektry atomov v molekulakh khimicheskikh
soyedineniy i v splavakh (X-Ray Spectra of Atoms in
Molecules of Chemical Compounds and In Alloys) Moscow,
Izd-vo AN SSSR, 1950. 206 p. 4,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut geokhimi i
analiticheskoy khimii.

Resp. Ed.: A.P. Vinogradov, Corresponding Member, USSR Academy
of Sciences; Ed. of Publishing House: L.L. Razumova; Tech.
Ed: N.A. Nevrayeva.

PURPOSE: This book is intended for specialists who use the
methods of X-ray spectrography for research in physics and
physical chemistry.

COVERAGE: This book presents a survey of achievements in the

Card 1/

X-Ray Spectra of Atoms (Cont.)

SOV/1508

field of X-ray spectroscopy as it is applied in the structural analysis of chemical compounds, metals, and alloys. A systematic review is given of Soviet and foreign experimental data. Research methods and fundamental theoretical concepts are also included. Much attention is given to transition elements, especially the iron group, due to the great practical and theoretical interest in these elements. Certain difficult aspects of X-ray spectrography which belong to the larger group of theoretical and experimental problems of the so called "satellite" lines are not included in this text. Bright prospects are seen for the application of X-ray spectrography to metallography. The author consulted the following persons: N.V. Ageyev, Corresponding Member of the AS USSR; Professors I.B. Borovskiy and G.B. Bokiy; and K.I. Narbutt and R.A. Borinskiy. There are 133 references, 96 of which are Soviet, 33 English, and 4 German.

TABLE OF CONTENTS:

Preface	3
Introduction	5

Card 2/7

X-Ray Spectra of Atoms (Cont.)

SOV/1508

I. X-RAY EMISSION SPECTRA AND THE STRUCTURE OF SOLIDS	7
I. Intensity and Shape of X-Ray Emission Lines in the K and L Series (Theory)	8
1. The shape and width of $K_{\alpha 1,2}$ lines	9
2. The shape and width of the X-ray K and L series of emission bands of elements from the first period of Mendeleyev's [periodic] table	13
a) Distribution of the valence electrons of metals in the conductivity band. Calculation of the $N(E)$ function	13
b) Calculation of the probability of the $p(E)$ radiation transition. Shape and intensity of the X-ray emission bands	28

Card 3/7

X-Ray Spectra of Atoms (Cont.)

SOV/1508

II. Experimental Study of the Shape and Structure of the K and L X-ray Emission Lines of Chemical Elements in Simplest Compounds and Alloys	36
1. The shape of K and L emission lines of heavy elements in Mendeleyev's [periodic] table	36
2. The shape and structure of the K and L emission lines of light elements from the first two periods of Mendeleyev's [periodic] table	39
III. Experimental Study of the Shape and Structure of X-ray K Emission Lines for Atoms of Transition Elements in the Simplest Compounds and Alloys	50
1. Use of equipment	50
2. Possible sources of error, accuracy, and method of measuring spectrograms	53
3. The form of $K_{\alpha 1,2}$ X-ray lines of atoms of transition elements in metals and the simplest chemical compounds	61

Card 4/7

X-Ray Spectra of Atoms (Cont.)

SOV/1508

4. The form of $K\alpha_{1,2}$ X-ray lines of copper and nickel atoms in alloys of the nickel-copper system 72
5. The form of $K\alpha_{1,2}$ X-ray lines of nickel atoms in alloys of the nickel-aluminum system 80
6. The form and width of the $K\alpha_1$ lines in the X-ray spectrum of nickel atoms in compounds and alloys 84
7. The form and width of the $K\beta_5$ lines of copper and nickel atoms in alloys of the nickel-copper system 87
8. The intensity of the $K\beta_5$ bands of nickel and copper atoms in alloys of the nickel-copper system 96

Card 5/7

X-Ray Spectra of Atoms (Cont.)	SOV/1508
II. X-RAY ABSORPTION SPECTRA AND THE STRUCTURE OF MATTER	102
1. Absorption of X-rays by atoms in gas molecules and in compounds	106
a) The theory of molecular X-ray absorption of Kronig, Petersen, and Bogdanovich	106
b) Experimental verification of the theory of Kronig, Petersen, and Bogdanovich	125
c) Structure of the X-ray absorption spectra in the range of the fundamental K absorption edge of atoms in molecules	129
2. X-ray absorption spectra of atoms of light elements in molecules and in crystals	139
3. X-ray absorption spectra of atoms of transition elements in molecules (with nickel compounds as an example)	163

Card 6/7

X-Ray Spectra of Atoms (Cont.)

SOV/1508

4. X-ray absorption spectra of atoms in metals and alloys 172

a) The theory of Blokhintsev and Kronig on the absorption of X-rays by metals (the theory of long-range order) 174

b) Kostarev's theory of the absorption of X-rays by metals (the theory of short-range order) 183

c) Structure of the fundamental X-ray absorption edge for atoms of true metals and of transition elements 188

Conclusion 201

Bibliography 203

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6-1-59

Card 7/7

CA

Structure of the K-edge of atomic x-ray absorption spectra in gaseous molecules. II. E. B. Valashtein and K. I. Narbutt. *Izvest. Akad. Nauk. S.S.S.R., Otdel. Khim. Nauk* 1950, 244-9.—With the x-ray absorption spectrum of gaseous HCl and their previously developed formula (C.A. 39, 5178), the bond in this mol. is calcd. to be approx. 20% polar. Since the presence of selective absorption lines causes an apparent displacement of the K absorption edge from its true position in many light elements, methods are suggested for obtaining the parameters necessary to calc. the absorption coeff. in this region.

Cyrus Feldman

CA

7

X-ray spectrum analysis with the aid of interpolation from f standards. E. R. Yabagichin, M. M. Kakhana, and I. D. Shevakevskii (V. I. Vernadskii Inst. of Geochem. and Anal. Chem., Acad. Sci. U.S.S.R., Moscow, U.S.S.R.) *Zhur. Anal. Khim.* 5, 251-4 (1930). When interpolating x-ray spectrograms by comparing their intensities with those of standards, the relation between the intensity of the line of the sought element and the d. of the analyzed sample must be taken into account. A formula expressing this relation was derived:

$$\frac{I_A}{I_B} = \frac{1 + \frac{100}{a} \cdot \frac{\rho_A}{\rho_A'}}{1 + \frac{100}{a} \cdot \frac{\rho_B}{\rho_B'}}$$

where I_A and I_B are the intensities of the lines of the sought element in standards A and B , a is the wt. % of the sought element, ρ is the d. of the sought element, and ρ_A' and ρ_B' are the ds. of the fillers in A and B . M. Huseh

FA 169T89

VAYNSHTEYS E. YE.

USSR/Physics - X-Ray Analysis

Aug 50

"Optimum Thickness of Absorbent for X-Ray Absorption Spectra," E. Ye. Vaynshteyn, Inst of Geochem and Anal Chem, Acad Sci USSR

"Zavod Lab" Vol XVI, No 8, pp 962-964

Studies problem of calculating on optimum thickness of absorbent in general form for binary alloys. Considers only investigations conducted with aid of photographic method for registering spectra, with their subsequent microphotomentering.

169T89

PA 160T103

VAYNSHTEYN, E. YE.

USSR/Physics - Nickel Compounds
X-Ray Spectra

May 50

"Form of X-Ray $K_{\alpha 1,2}$ -Lines of Nickel Atoms in Very Simple Chemical Compounds, III," E. Ye. Vaynshteyn, Inst of Geochem and Anal Chem, Acad Sci USSR, 4 pp

"Zhur Eksper 1 Teoret Fiz" Vol XX, No 5

Experimentally investigates form and width of X-ray spectral $K_{\alpha 1,2}$ -lines of nickel oxides and sulfides ($NiSO_4$, NiO , Ni_2O_3 , NiS , Ni_3S_4). Shows index of asymmetry of lines to be dependent on method of preparing oxides. Proposes new explanation of this asymmetry. Submitted 12 Nov 49.

160T103

VAYNSHTEYN, E. Ye.

PA 160T102

USSR/Physics - Nickel Alloys
X-Ray Spectra

May 50

"Form of the X-Ray $K_{\alpha 1,2}$ -Lines of Cu and Ni Atoms
in Alloys of the System: Ni--Cu, IV," E. Ye.
Vaynshteyn, Inst of Geochem and Anal Chem, Acad
Sci USSR, 5 pp

"Zhur Eksper i Teoret Fiz" Vol XX, No 5

Experimentally investigates form and width of
X-ray $K_{\alpha 1,2}$ -lines of Ni and Cu in Ni--Cu alloys.
Results obtained are connected with structure of
atoms in alloy lattice. Studies form of $K_{\alpha 1,2}$
-lines of Ni and Cu alloys in para- and ferromag-
netic states. Submitted 12 Nov 49.

160T102

VAYNSHTEYN, E.

155T78

USSR/Physics - Metals, Structure
Elements, Transition Jan 50

"Structure of the Principal K-Absorption Edge
of Atoms of Transition Elements in Metals,"
E. Vaynshteyn, Inst of Geochem and Anal Chem
Imeni V. I. Vernadskiy, Acad Sci USSR, 3 pp

"Dok Ak Nauk SSSR" Vol LXX, No 1

Recent studies of form and structure of several
X-ray emission lines of Ni and Cu in Ni-Cu and
Ni-Al alloys show elements of transition groups
in different states of ionization can exist in
lattices of pure metals and alloys. These

155T78

USSR/Physics - Metals, Structure Jan 50
(Contd)

peculiarities in behavior of atoms of transi-
tion elements in metallic lattices and alloys
must unavoidably complicate the process of X-
ray absorption. Structure of principal absorp-
tion edge of atoms in metal must be superposi-
tion of two (or more) individual edges, each ap-
pearing because of transitions of the K-electron
of the atom of given type in the region of con-
tinuous energies into free optical levels which
are different in atoms differing in degree of
ionization. Submitted by Acad S. I. Vavilov
29 Oct 49.

155T78

VAYNSHTEYN, E. Ye.

USSR/Chemistry - X-Ray Spectrography Nov/Dec 51

"One Means for Eliminating Focusing Error and Increasing Radiation Intensity of the Cauchois Type Spectrograph," A. V. Pivovarov, E. Ye. Vaynshteyn, Kazakh State U; Inst of Geochem and Analyt Chem imeni V. I. Vernadskiy, Acad Sci USSR

"Zhur Analit Khim" Vol VI, No 6, pp 386, 387

Authors describe method and apparatus for bending of crystal of X-ray spectrograph which increase radiation intensity and accuracy of spectrograph. They state that same principle was used for design of new spectrograph RSK-3 of high radiation intensity.

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